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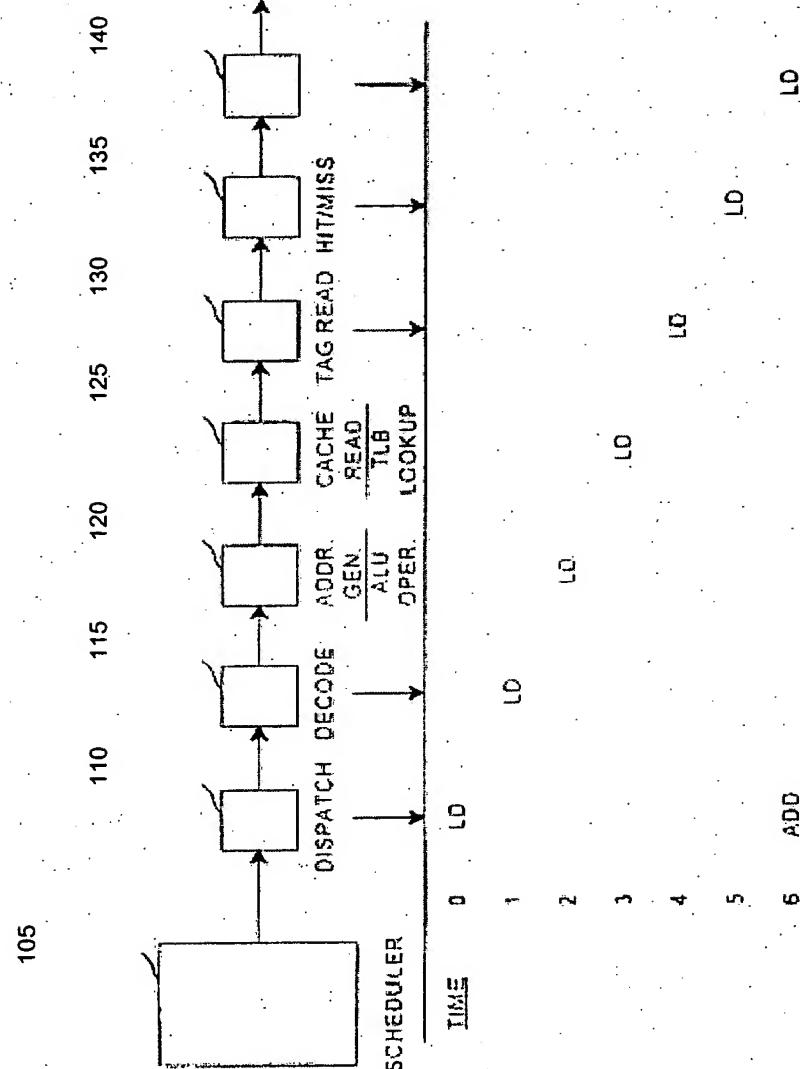


FIG.1
PRIOR ART

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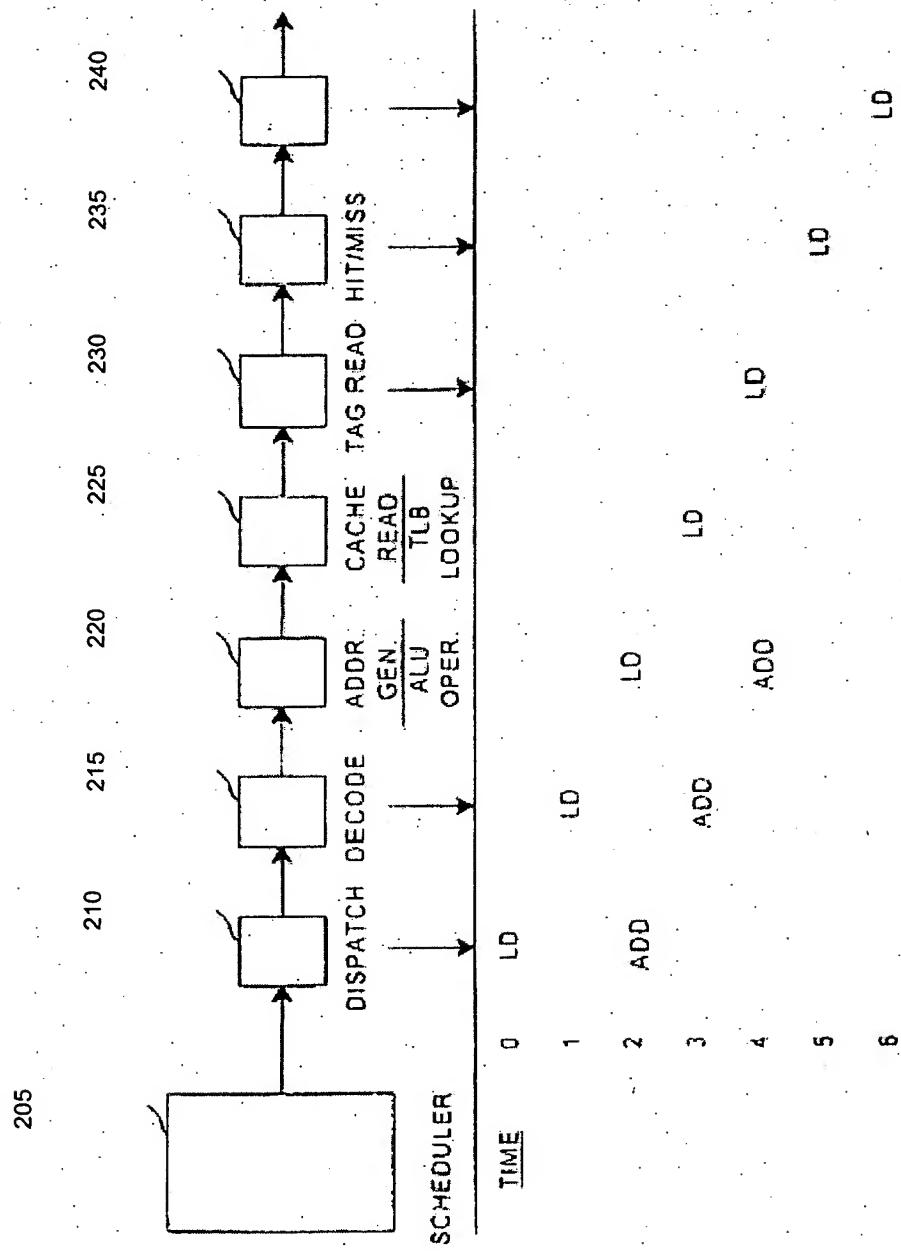


FIG.2

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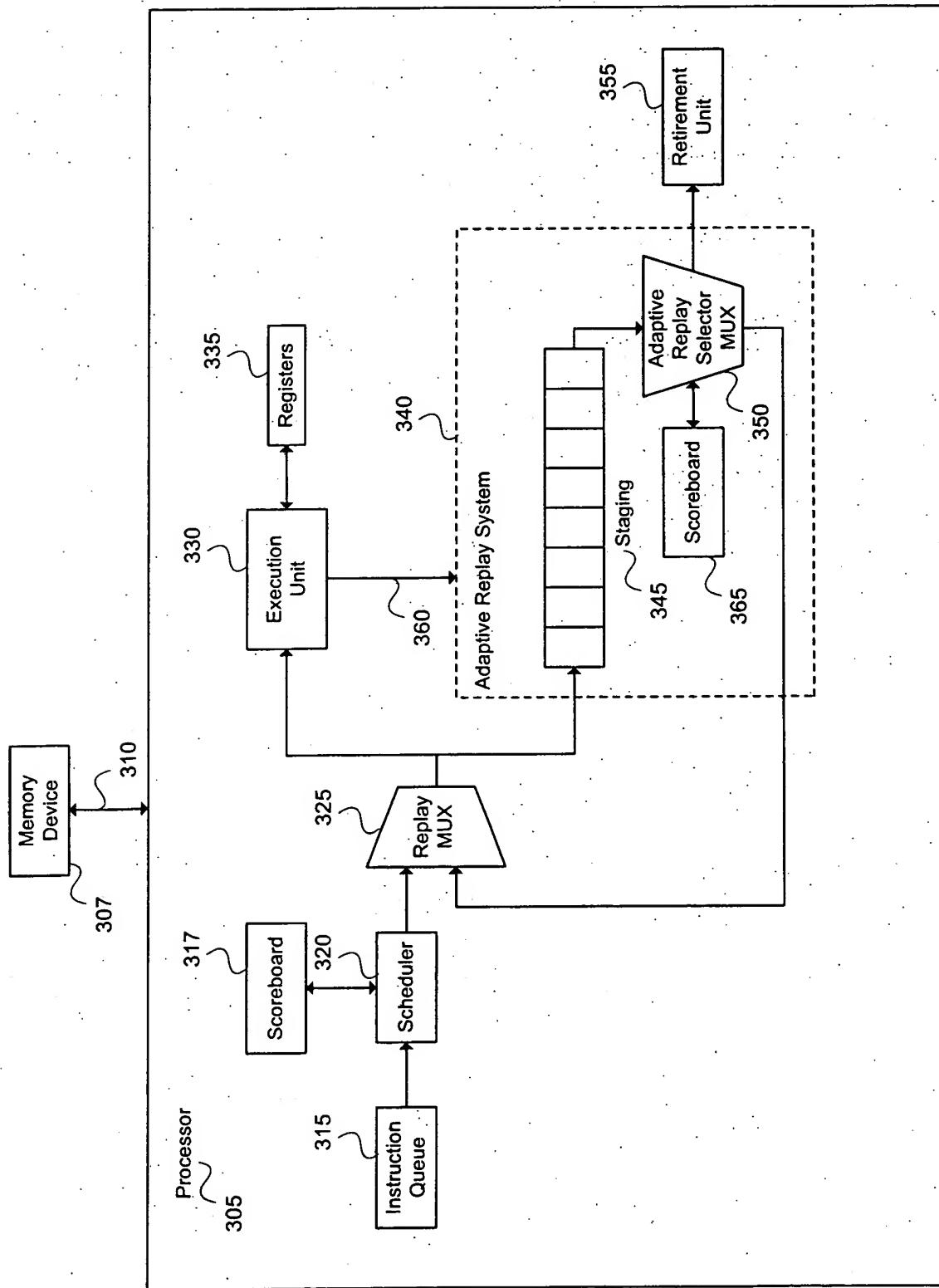


Fig. 3

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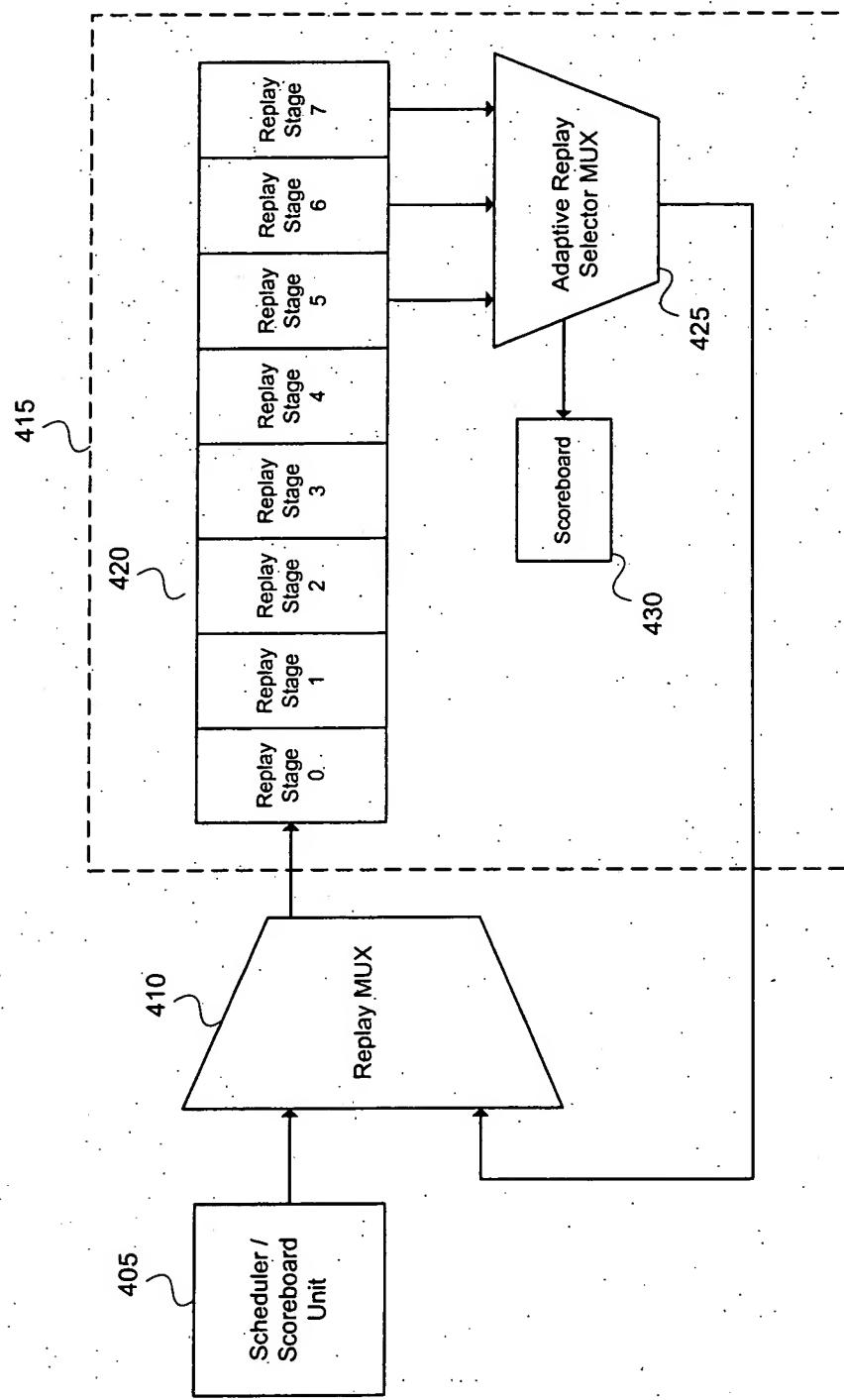


Fig. 4

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Case 1: Uop late arrival

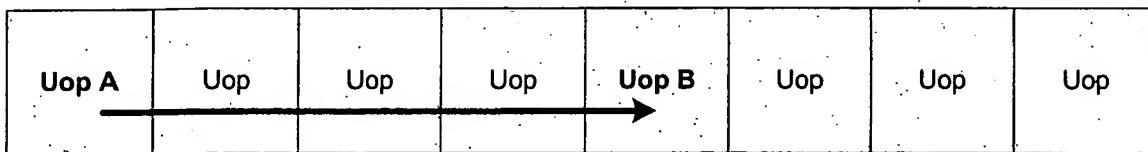


Fig. 5a

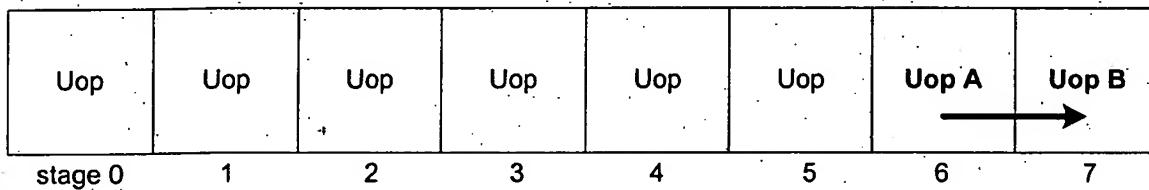


Fig. 5b

Case 2: Multiple active Uops

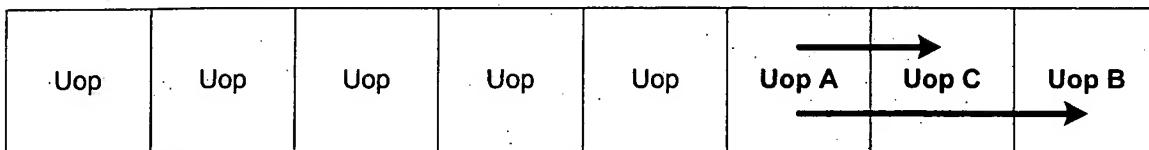


Fig. 6a

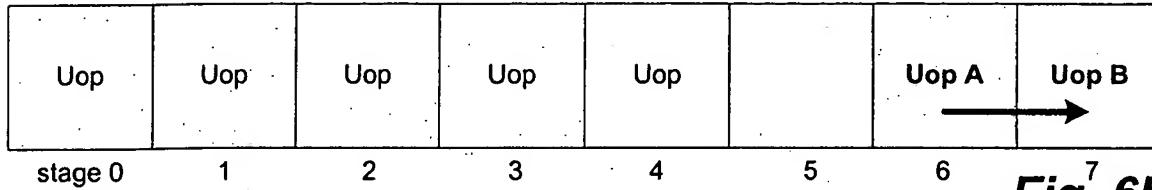


Fig. 6b

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Case 3: Resource conflicts

Uop	Uop	Uop	Uop A	Uop	Uop	Uop	Uop
Uop	Uop	Uop	Uop B	Uop	Uop	Uop	Uop

Fig. 7a

Uop	Uop	Uop	Uop	Uop	Uop	Uop A	Uop
Uop	Uop	Uop	Uop	Uop	Uop	Uop B ←	Uop

Fig. 7b

Uop	Uop	Uop	Uop	Uop	Uop B	Uop A	Uop
stage 0	1	2	3	4	5	6	7

Fig. 7c

Case 4: Uop goes replay safe.

Uop	Uop	Uop A	Uop Z	Uop B	Uop	Uop	Uop
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Fig. 8a

Uop	Uop	Uop	Uop	Uop	Uop A	hole	Uop B
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Fig. 8b

Uop	Uop	Uop	Uop	Uop	Uop	Uop A	Uop B
stage 0	1	2	3	4	5	6	7

Fig. 8c

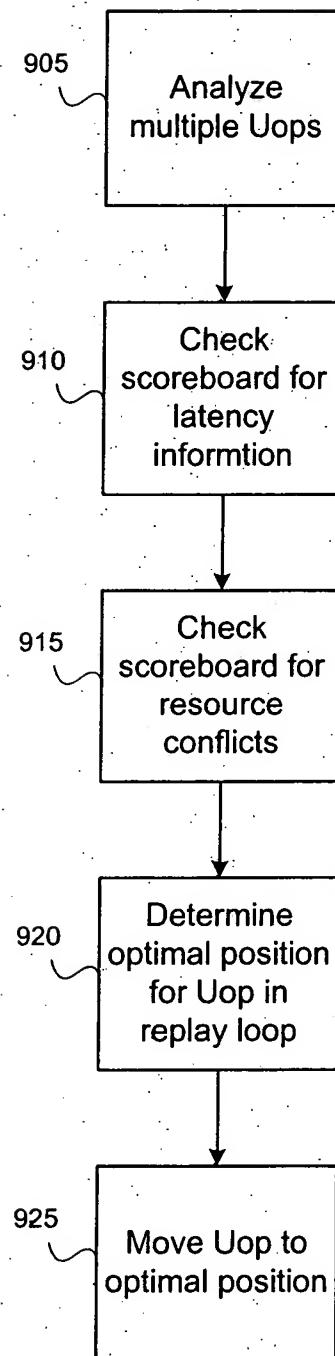


Fig. 9